

### AMENDMENT TO THE CLAIMS

1.     **(Original)** An additive composition, comprising:  
a Mannich reaction product of
  - a) a polyisobutylene alkylated hydroxyaromatic compound;
  - b) an aldehyde; and
  - c) an amine containing at least one reactive amino group,wherein the said polyisobutylene is derived from a conventional polyisobutylene and a high vinylidene polyisobutylene; and  
wherein the said polyisobutylene alkylated hydroxyaromatic compound is derived by:
  - i) combining the conventional polyisobutylene and the high vinylidene polyisobutylene prior to the alkylation of the hydroxyaromatic compound; or
  - ii) combining a hydroxyaromatic compound alkylated with the conventional polyisobutylene and a hydroxyaromatic compound alkylated with the high vinylidene polyisobutylene.
2.     **(Original)** The additive composition of claim 1 wherein the conventional polyisobutylene has a trisubstituted double bond isomer content of 45 mole % or greater.
3.     **(Original)** The additive composition of claim 1 wherein the high vinylidene polyisobutylene has a combined alpha- and beta-vinylidene double bond isomer content of 70 mole % or greater.
4.     **(Original)** The additive composition of claim 1 wherein the polyisobutylene of the alkylated hydroxyaromatic compound has an alpha- and beta-vinylidene double bond isomer content of 50 to 95 mole % and a trisubstituted double bond isomer content of 4 to 40 mole %.

5.     **(Original)** The additive composition of claim 1 wherein the said polyisobutylene is derived by combining the conventional polyisobutylene and the high vinylidene polyisobutylene prior to the alkylation of the hydroxyaromatic compound.
6.     **(Original)** The additive composition of claim 1 wherein the said polyisobutylene is derived by combining a hydroxyaromatic compound alkylated with the conventional polyisobutylene and a hydroxyaromatic compound alkylated with the high vinylidene polyisobutylene.
7.     **(Original)** The additive composition of claim 1 wherein the said polyisobutylene is derived by combining a Mannich reaction product from a hydroxyaromatic compound alkylated with the conventional polyisobutylene and a Mannich reaction product from a hydroxyaromatic compound alkylated with the high vinylidene polyisobutylene.
8.     **(Original)** The additive composition of claim 1 wherein the said polyisobutylene has a number average molecular weight ranging from 500 to 3,000.
9.     **(Original)** The additive composition of claim 1 wherein the hydroxyaromatic compound is phenol, the aldehyde is formaldehyde or a reactive equivalent thereof, and the amine is a secondary monoamine, an alkylenediamine, or a mixture thereof.
10.    **(Original)** A fuel additive concentrate composition for an internal combustion engine, comprising:
  - a solvent;
  - the additive composition of claim 1; and
  - optionally one or more additional fuel additives.
11.    **(Original)** A fuel composition for an internal combustion engine, comprising:
  - a major amount of a fuel; and
  - a minor amount of the additive composition of claim 1.
12.    **(Original)** A fuel composition for an internal combustion engine, comprising:

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a major amount of a fuel; and

a minor amount of the fuel additive concentrate composition of claim 10.

13. (*Original*) A method to reduce deposit formation in a fuel system of an internal combustion engine, comprising:

operating the engine with the fuel composition of claim 11.

14. – 16. (*Cancelled*)